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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,052	06/24/2003	Hyang-Shik Kong	6192.0223.D1	8122

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03/05/2004

Docketing Department
HOWREY SIMON ARNOLD & WHITE, LLP
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EXAMINER

DOAN, THERESA T

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 03/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/602,052	KONG ET AL.	
	Examiner	Art Unit	
	Theresa T Doan	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-12 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-8, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/970,785.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 02/23/04 .
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 06/24/03 . 6) ☐ Other: .

Interview Summary	Application No.	Applicant(s)	
	10/602,052	KONG ET AL.	
	Examiner	Art Unit	
	Theresa T Doan	2814	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Mr. Hae-Chan Park. (3) ____.
- (2) Ex. Theresa T Doan. (4) ____.

Date of Interview: 23 February 2004.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: ____.

Claim(s) discussed: ____.

Identification of prior art discussed: ____.

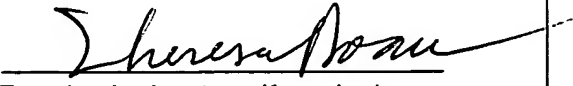
Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Mr. Park and the Examiner agreed that the Election/Restriction filed on 02/02/04 should be from claims 3-11 instead of claims 1-11. This was a typo error.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.


Examiner's signature, if required

DETAILED ACTION

1. The cancellation of claims 1-2 in paper that filed on 02/02/04 is acknowledged.

Election/Restrictions

2. Applicant's election with traverse of claims 3-11 that filed on 02/02/04 is acknowledged. The traversal is on the ground(s) that the search and examination of the entire application could be made without serious burden. This is not found persuasive because the two inventions appear to be independent as claimed and there is no evidence of record to show otherwise.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 3-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation of "...wherein the pad auxiliary layer is **formed on a same layer as the gate wiring.**" as recited in claim 3, lines 11-12 is not described in the specification. For example, figure 3 is shown a pad auxiliary layer 45 is formed on the gate insulation layer 30, but not on the same layer as the gate wiring 22. Therefore, for the examination purpose, the pad auxiliary layer 45 is assumed as formed on the gate insulation 30.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 3-8 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim (U.S 6,038,003) of record.

Regarding claim 3, Kim (in figures 4-5g) discloses a thin film transistor substrate, comprising:

a gate wiring formed on an insulation substrate 101 that includes gate lines 113, and gate electrodes 111 and gate pads 115 connected to the gate lines (see figure 5b);

a gate insulation layer 117a covering the gate wiring (see figure 5c);

a semiconductor layer 133a formed over the gate insulation layer;

a data wiring formed over the gate insulation layer that includes data pads 125 (see figure 5e);

a protection layer 137 covering the data wiring (see figure 5f);
auxiliary pads 167 connected to the data pads 125 through contact holes formed in the protection layer (see figure 5g); and
a pad auxiliary layer (133a) formed protruding a predetermined height under the data pads 125, wherein the pad auxiliary layer 133a is formed on the gate insulating layer 117a.

Regarding claim 4, Kim (in figures 5e-5g) discloses wherein the data wiring further includes data lines 123, source electrodes 121 connected to the data lines, and drain electrodes 131 provided opposing the source electrodes 121 with respect to the gate electrodes 111.

Regarding claim 5, Kim (in figure 5g) discloses further comprising pixel electrodes 141 formed on a same layer as the auxiliary pads 167 and connected to the drain electrodes 131.

Regarding claim 6, Kim (in figures 4-5g) discloses further comprising an ohmic contact layer 135 formed between the semiconductor layer 133 and the data wiring 121, the ohmic contact layer being doped with impurities at a high concentration.

Regarding claim 7, Kim (in figure 5g) discloses wherein the ohmic contact layer 135 is formed in a same shape as the data wiring.

Regarding claim 8, Kim (in figure 5g) discloses wherein the semiconductor layer 133, except for a channel formed between the source electrodes 121 and the drain electrodes 131, is formed in the same shape as the data wiring.

Regarding claim 10, Kim (in figures 4-5g) discloses a thin film transistor, comprising:

- a gate wiring formed on an insulation substrate 101 and including gate lines 113, gate electrodes 111 and gate pads 115 connected to the gate lines;

- a gate insulation layer 117a covering the gate wiring;

- a semiconductor layer 133a formed over the gate insulation layer (see figure 5c);

- a data wiring formed over the gate insulation layer 117a and including data lines 123, source electrodes 121 connected to the data lines, drain electrodes 131 provided opposing the source electrodes 121 with respect to the gate electrodes 111, and data pads 125 connected to the data lines (see figure 5e);

- a protection layer 137 covering the data wiring; and

- a pixel electrodes 141 connected to the drain electrodes 131 through contact holes formed on the protection layer 137, wherein the protection layer or the gate insulation layer is removed at pad portions where the data pads 125 are formed such that at least the data pads are fully exposed (see figure 5g, column 7, lines 14-24).

Regarding claim 11, Kim (in figure 5g) discloses further comprising auxiliary pads 167 formed on a same layer as the pixel electrodes 141 and covering the data pads 125.

Allowable Subject Matter

7. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to disclose the pad auxiliary layer is made of an aluminum group conducting material, the auxiliary pads are made of IZO, and the pad auxiliary layer and the auxiliary pads are interconnected via the contact holes of the data pads.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa T Doan whose telephone number is (571) 272-1704. The examiner can normally be reached on Monday to Thursday from 8:00AM - 6:00PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WAEL FAHMY can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

TD
February 25, 2004.


PHAT X. CAO
PRIMARY EXAMINER